Chapter Two
Supplemental Instruction in the First College Year

Introduction

The first year of college can be one of life's most critical transitions, and throughout the history of higher education, this year has always presented challenges both to students and to institutions. The past 30 years have witnessed a profound change in the attitudes of colleges and universities toward first-year students. From a Darwinian (sink or swim) ethic that prevailed well into the 1960s, many institutions have become in recent years far more concerned about the well-being of those in their first college year. Factors that have helped create this concern include the declining numbers of traditional-aged students and the financial ramifications of this change; the increasing diversity (ethnic, gender, cultural) of students; the increasing numbers of older students; and the uneven and often inadequate academic preparation of entering students.

These issues and others have presented a variety of challenges to the academy. Institutions are concerned with how best to meet student needs in times of shrinking resources. Faculty and staff want first-year students to succeed not only for the sake of the students themselves, but also for the sake of the institution's survival and their personal job security.

Not only have the past 30 years witnessed a change in institutional attitudes toward new students, but these years have also seen the growth of substantive research on student development, both cognitive and social. Since 1960, social scientists have provided essential information about why students do or do not succeed in the college environment and what characteristics of students and institutions enhance or detract from that success.

Of particular interest to educators who work with first-year college students is the body of research that investigates the causes and cures of first-year student attrition. Some of the factors that may account for student attrition during the first college year are the many academic and social differences between high school and college. A recent study (Weinstein et al., 1988) identified the following six categories of differences between high school and college that may affect the success of first-year college students: academic environment, grading, knowledge acquisition, support, stress, and responsibility. The study found that college students had less support from family, friends, and teachers; higher stress due to more difficult academic work; increased responsibility for learning; and increased responsibility for making major life decisions. It is no surprise that first-year students are the most prone to withdraw since they have to contend with significant changes in these six categories.

How SI Complements First-Year Experience Programs

In order to assist students in their transition from high school to college and reduce rates of student attrition, many institutions are now offering some version of a "first-year experience" program. Sometimes these programs are conducted during an intense workshop before the beginning of the term or through weekly meetings during the first weeks of the semester. Many institutions, however, conduct "extended orientation" courses over an entire semester (Barefoot, 1992). Supplemental Instruction is an excellent complement to or follow-up activity for first-year experience courses or programs because SI provides a supportive environment for the immediate use of study strategies that may have been discussed or demonstrated in other settings.

A problem common to many "study skills" sessions or classes is that they often rely on *lectures* about study strategies. These instructional sessions are isolated from the

actual content material in specific college courses, causing students to be either frustrated or disinterested. Research has shown that teaching study skills in isolation from content has little if any impact on the students' academic performance (Dimon, 1988; Keimig, 1983). While students can be taught elaborate note-taking and text-reading strategies, these skills may not necessarily be applied in future courses.

Another problem related to isolated study skills instruction is that many students associate skills review as appropriate for "other students," those who need remedial or developmental assistance. Students will have a greater interest in study skills strategies when the skills are directly applied to courses that the students are currently taking (Martin et al., 1983).

Introducing Learning/Study Strategies in SI Sessions

The various activities within SI sessions enhance study skills while being tied closely to course content. Generally, it is not advisable to label these activities as "study skills instruction" but rather to weave particular skills into the context of the course material. By modeling appropriate questioning and reasoning, SI leaders can assist first-year students as they develop the following learning strategies.

Note-taking. Processing lecture notes in the SI session requires first-year students to consider the adequacy of their own note-taking techniques. It quickly becomes evident to many of them that there may be a better method for recording what the professor said than the method they learned in high school. SI leader suggestions might include using summary margin notebook paper (with a wide left margin), recopying notes that are particularly difficult to decipher, writing potential test questions that can be used for reviewing the material in class notes, correlating notes with outside reading assignments, and highlighting notes when appropriate.

For many first-year students, the usual advice to outline and summarize as they listen to a lecture is both unrealistic and counter-productive. If students are unfamiliar with the course content, it is virtually impossible for them to listen to the professor, sort out the important points, and outline or summarize them. This is because students often do not have the necessary background to decide what is important. Further, as students attempt to put the lecture into their own words, they may omit key vocabulary terms or phrases that they need to learn. Instead, first-year students in SI sessions are advised to take down as much information as they can during the lecture, bring their notes to the SI session, and, with the help of the SI leader and other students, reorganize and refine their notes. Students are then encouraged to recopy their notes before the next class period.

Learning to Work with Other Students in Groups. First-year students often find that organizing and processing information together during the SI session is a very beneficial experience. They see that course content is manageable and that with mutual work and support, they can make sense out of even the most difficult material. Because most students tend to study alone, one of the important insights they gain from SI is the extent to which discussing the material with other students increases their own understanding of the content. In future courses when SI sessions are not available, some of these students will form their own study groups.

Test Review. After each exam, the SI leader guides the group in reviewing questions that were particularly troublesome. This process reinforces the correct answers on the exam and gives the students a chance to examine how they interpreted the questions, how they derived the answers, and, if they made an error, why they made it. The SI leader also talks with students about test anxiety and test-taking strategies (e.g., answering the easier questions first and returning to harder questions later, drawing diagrams on the test to see relationships, outlining essay questions, etc.). Reviewing the test will also help students to understand

more thoroughly the kinds of questions the professor asks and to predict future test questions more accurately.

Reading Proficiency Check. During the first part of the semester, the SI leader checks to see how well first-year students are understanding the text materials. The SI leader identifies students who have serious reading skill deficiencies, and a few of them may need to be referred to a reading center or to a tutor who can help them increase their reading proficiency.

Straight text reading efficiency can be enhanced through a procedure called "reciprocal questioning" (Martin & Blanc, 1984). In reciprocal questioning, a small section of the text is selected for silent reading by students. Then both the teacher and the students take turns asking and answering questions. When students become active readers, as this procedure requires, they find that the time they must spend in re-reading material is greatly reduced because they comprehend more information during their initial reading. Examination of text materials will also help students to discover cues that they can use in deciding what reading rate is correct for specific parts of the text. Sometimes, it is acceptable to skim quickly. Other parts of the text will require thorough reading or re-reading.

Referrals to Campus Resources. SI leaders need to be trained to make referrals to other campus resources. This referral role is especially important for first-year students since they may not yet have developed close relationships with an academic advisor or other faculty member/ administrator who also might make referrals. During pre-term SI leader training workshops, time should be allocated to a systematic review of available campus resources and an appropriate way to make referrals.

Learning to Read Charts, Graphs, and Diagrams. If a textbook includes graphs or diagrams, it is important that students are not omitting these aids from their study of the materials. First-year students often think that charts and graphs are extraneous information when they are usually essential to establishing an understanding of the idea. Occasionally, when graphs are used extensively, it is appropriate to review how to read and interpret graphs, as well as to review the material they contain.

Learning about the Syllabus. At times during the semester, it will be helpful to direct first-year students' attention back to the course syllabus. From the syllabus, students can anticipate the dates of future tests and the amount of material to be covered between tests. Some discussion can result that will include tips on time management. Students will often need help in being realistic about how much time is required to prepare for exams and to complete semester-long assignments such as term papers. Global statements like, "You should be working on your term paper all during the semester," are not helpful; rather, SI leaders should help students with such matters as deciding approximately how much time they can expect to spend in the library gathering materials and how much time they should expect to spend in putting the materials together into a paper. This task is much easier when the SI leader has previously taken this course from the same professor.

Teaching/Learning from Experience. The SI leader can become a mentor to the students by introducing strategies that he or she previously found helpful with the course material. It is critical that the SI leader attend class with the students because students will need specific assistance with the each day's reading material and lecture notes in addition to appropriate use of study skills strategies.

Focus on High-Risk First-Year Courses

Retention programs that focus only on first-year students face a unique problem that makes success more difficult: there is often no experience with previous college-level course work that can be evaluated when attempting to determine which students are at high risk.

Analysis of high school grades and standardized college entrance examinations do not identify all students who will drop out of college for academic reasons (Christie & Dinham, 1991; Martin et al., 1983; Tinto, 1987), and attrition cannot be addressed effectively by providing help only to those students who show either symptoms or predisposing weaknesses. The treatment must be more generalized, and the problem must be addressed at or near its source: the mismatch between the level of instruction and the level of student preparation.

First-year courses which are difficult for students include those that have the following characteristics: large amounts of weekly readings from both difficult textbooks and secondary library reference works, infrequent examinations that focus on higher cognitive levels of Bloom's taxonomy, voluntary and unrecorded class attendance, and large classes in which each student has little opportunity for interaction with the professor or the other students.

While it may be difficult to guess correctly which students may withdraw from college, it is relatively easy to learn, by using standard institutional data, which courses have large numbers of student withdrawals or Ds and Fs as final course grades. At UMKC, Supplemental Instruction is offered with those first-year courses in which over 30% of the students either withdraw after the drop/add period or earn Ds and Fs. Other institutions may establish different criteria for designating a course as "high risk." For example, some colleges and universities implement SI in classes where the overall rate of student success is reasonably high, but low for some student subpopulations that the institution has targeted for special retention activities.

SI Is Helpful for a Variety of Student Subpopulations

Based on data collected by UMKC concerning our own SI program and SI programs from adopting institutions from across the U.S. and several foreign countries, SI appears to be effective with all subpopulations of students. Prior levels of academic preparation, motivation level. gender, ethnicity, age, academic discipline, and whether or not the student works have not been found to change the effectiveness of SI significantly.

Among these student subpopulations, three groups are of special interest to first-year student educators: academically talented students, remedial/developmental students, and students from both groups who can be characterized as field-dependent learners. SI can be helpful for these and other student populations with different needs.

Academically Talented Students

When many educators think of a dropout "profile," most would not assume that the academically talented student would be a candidate for concern. However, sizeable portions of these students drop out and should not be overlooked as they are among the easiest to retain. In fact, SI was initially designed to help talented medical, pharmacy, and dentistry students at the University of Missouri-Kansas City. Unacceptably high numbers of these students were dropping out or being academically dismissed from these professional school programs. Research suggests that all students, including the talented upper quartile students, earn higher grades if they are SI participants.

Recent research has focused on the academic needs of talented students attending selective institutions. Wratcher (1991) focused on first-year students attending Carnegie Mellon University who had not experienced difficulty in high school but who, in the collegiate environment, experienced academic failure. The study found that this subset of students from the entire group of academically talented students would often go into periods of denial when faced with academic difficulty. These periods might last throughout the first year. According to Wratcher's research, these students compounded their problems by failing to seek

academic assistance even though they were encountering academic difficulty and earning poor grades. The students reported that they feared the stigma of identifying their own academic failure. But because of failure in one or more classes, these students had a high probability of being placed on academic probation following their first or second semester at college. Other behavior themes associated with this student subpopulation included perfectionist tendencies and stress resulting from parental and personal expectations. These behaviors compounded the difficulty that these academically able students were already experiencing.

Supplemental Instruction is used at several selective institutions since it meets the needs of academically talented first-year students. Academic assistance begins the first week of class, and all students are encouraged to attend the sessions at least once each week, irrespective of their current or predicted academic performance. Since SI is open to all students, it avoids the stigma of being remedial or developmental. In fact, SI has been offered within honors programs for students who wished to maximize their content mastery.

Remedial/Developmental Level Students

Another student population that needs academic assistance is at the opposite end of the continuum of academic ability. These are "dependent" learners who are in need of remedial or developmental education and who require extensive assistance during the first year of college (Levitz & Noel, 1989). "The underprepared student is often one who may have the basic intellectual capacity but who has reached a point of impasse temporarily created by a mismatch between his or her knowledge base and the new information that he or she is expected to absorb on an independent basis" (Tomlinson, 1989, p. 20).

One of the characteristics of first-year college students is a common difficulty in making the transition from high school to college. Both the speed and scale of transition is a problem for many students (Tinto, 1982). If this transition is difficult for the general student body, it seems that it would be particularly difficult for developmental students/dependent learners. The nature of the high school environment often helps these students meet the minimum academic requirements at this level: daily homework; weekly examinations; daily class attendance; and social support from their family, friends, or other social groups. Most of these characteristics are missing at the college level.

First-year developmental students are particularly in need of academic assistance that helps them develop independent learning skills. In SI, students have the opportunity to learn and master the strategies of independent learning. SI sessions provide them the opportunity to practice and therefore internalize these skills, making them far less likely to drop out in succeeding semesters.

Field-Dependent Learners

Learning styles of students have been the subject of considerable research. One model for understanding differences in learning styles is to place students on a continuum between "field-dependent/relational/affective" and "field-independent/analytic/nonaffective" (Anderson, 1988). The field-dependent learner prefers to learn material that can be placed in a larger context. On the other hand, the field-independent learner appears to have a higher tolerance for material that is inanimate and impersonal. These learners are able to see and understand information that does not have a clear context.

Research findings indicate that these are not polar positions, but rather opposite ends of a continuum of preferred learning styles. Most students are located somewhere along the continuum, and such positions are subject to change throughout life. Research data suggest that field-independent learners are more typically Caucasian males. Field-dependent learners are often female, African-American, Native-American, or Hispanic students who need to connect their new learning with previous

experience or other familiar information (Anderson, 1988).

Supplemental Instruction provides an environment that can be helpful for both field-dependent and field-independent learners. Field-dependent learners have an opportunity to see many connections between old and new academic material through discussion and review of previous lecture material. Outside reading materials and class lecture notes can be synthesized together. Additionally, through skillful facilitation by the SI Leader, familiar contemporary events can be connected to the course material. Students can become more engaged since each SI participant has the opportunity to be involved actively in the class discussions.

SI sessions are helpful for field-independent learners as well since they have another opportunity to gather missed information from class lectures or outside readings. These students also benefit from study strategies that provide more effective ways to organize and understand the course material.

SI Links Theory and Practice

Recent social science research and scholarship on college students have provided a comprehensive theoretical framework for first-year student programming. In retention and student development research, three interrelated factors have emerged repeatedly as predictors of student success and improved retention. These factors, which have become central objectives of many first year student programs, are (a) a felt sense of community, (b) involvement of students in the life of the institution, and (c) academic/social integration. Supplemental Instruction provides a framework within which to accomplish each of these objectives.

SI Develops a Sense of Community

Many higher educators are concerned about the lack of a felt sense of community among students who attend a particular college or university. Many factors within the collegiate environment, such as the increasing diversity of students and the decreasing numbers of them who live on campus, work against the building and maintaining of campus community. Colleges and universities, therefore, must develop creative approaches in order to provide an environment in which a sense of campus community can flourish.

Tobias (1992) suggests that, through a focus on active learning in small classes that include more interactions between the teacher and students and among students, a sense of community can be developed within the classroom. SI brings students together in small groups for class study sessions, and, for some of these students, this is their only time to interact with other classmates. An indirect result is that students may sense that the institution is a caring community that supports their academic success.

In a small but important way, SI meets one of the most pressing challenges to the development of a sense of campus community—the ethnic diversity of entering college students. Among the several strategies colleges and universities may employ to enhance the multicultural awareness of their students, one successful strategy is to design structures which bring different students together to work on a common task. In these settings, students feel more comfortable to express themselves and to share more naturally their perspectives on issues as interpreted from their own unique cultural traditions (Dash, p. 19). SI sessions provide such an environment. The SI session may be, for some students, the first time they have worked with others outside of their cultural groups. The SI experience can help break down some stereotypes and can provide an opportunity for discussion and sharing of culturally diverse points of view.

SI Facilitates Student Involvement

Astin (1985) and his colleagues argue that increased levels of involvement with a college or

university leads to higher student talent development. Astin offers the following simple definition for involvement:

> Quite simply, student involvement refers to the amount of physical and psychological energy that the student devotes to the academic experience. Thus, a highly involved student is one who, for example, devotes considerable energy to studying, spends a lot of time of campus, participates actively in student organizations, and interacts frequently with faculty members and other students (p. 36).

An essential component of increased student involvement is a focus on academic work. Light (1992) reports that ". . . [S]tudents who get the most out of college, who grow the most academically, and who are happiest, organize their time to include interpersonal activities with faculty members, or with fellow students, built around substantive, academic work" (p. 6).

SI provides a natural setting for involvement of first-year students with their peers and with an upperclass student who serves as the SI leader, and this increased involvement is focused primarily on academic work. SI participating students spend more time on campus reviewing class content in a structured, effective session that involves others.

SI Facilitates Academic and Social Integration

In his research on student retention, Tinto (1987) found that four clusters of events tend to be experienced by college students before they make the decision to drop out: poor adjustment to the college environment, an experience of either academic or social difficulty, incongruence between the student's expectations and the demands of the institution, and a feeling of social isolation. These clusters of events tend to be felt most acutely during the first year. Institutions that want to improve rates of first-year student retention need to develop structures that help students adjust to both the academic and social life of the campus, that assure the delivery of pre-matriculation promises to students, and that decrease the likelihood that students will feel isolated from the life of the campus.

There is research evidence to suggest that Tinto's model applies to all students, despite ethnicity, and "major constructs of Tinto's model have largely withstood the test of time" (Cibik & Chambers, 1991, p. 130). Within this theoretical framework, however, minority students are at especially high risk of "malintegration" to academic and social systems. For students in general, separation from past communities and memberships and a bewildering transition to college life can set the stage for departure during the first year. For many minority students at predominantly white institutions, the necessary social, cultural, and mental adjustments are simply insurmountable (Cibik & Chambers, 1991).

SI provides all students, but especially minority students, an opportunity to practice and master essential academic skills in a supportive small group setting without the stigma of remediation. SI also gives students the opportunity to feel part of a group that is bonded by a common purpose and concern. The critical element of SI in this integration process is the SI leader. The SI sessions are structured and paced through the facilitation of the SI leader.

SI Enhances Affective and Cognitive Development

Collaborative learning activities do more than just raise final course grades for students. Considerable research has been conducted on cognitive and affective changes within students who participate in such activities.

Critical Thinking Skills. Research suggests that students who work in collaborative learning groups develop their critical thinking skills since they have an opportunity to be engaged actively through peer-group discussions and development of responsibility for their own learning (Johnson & Johnson, 1986; Smith, 1989).

Thinking and language abilities are closely linked. Collaborative group work is cited as a strategy for the development of thinking since it encourages students to construct their own understanding (Chaffee, 1992). Too often college students sit silently in class without the opportunity to vocalize and interact with others.

Some researchers suggest that critical thinking is content specific (Brookfield, 1989; Kender & Kender, 1991; McPeck, 1981; Meyers, 1986). This finding has particular importance for SI since SI is attached to specific courses. SI's course specificity may explain why some students who demonstrate course competency and receive high grades have academic problems in courses from other disciplines th. nave no SI component.

Social Skill Development. Most college students spend much of their academic lives studying and working by themselves. However, once they enter the work force after college graduation, they will probably spend the next 40 years working within teams. While colleges and universities may be quite efficient at imparting content material, they are often woefully inadequate in producing effective employees who can successfully interact and work with new colleagues at a job site. Collaborative learning encourages students to ". . . view each classmate as a potential helper rather than as a competitor" (Astin, 1987, p. 17).

Light (1990) reports that even new students at highly selective institutions lack essential social skills needed for success both during college and after they enter the work place. He states, "[Students] point out that the process of working in a group, in a supervised setting, teaches them crucial skills. The skills. . . include how to move a group forward, how to disagree without being destructive or stifling new ideas, and how to include all members in a discussion. Few students, if any, have these skills when they arrive at college" (pp. 70-71).

SI sessions can assist students in developing their social skills. Through small group problem-solving activities, group lecture-note construction, and other activities, SI participants see other students in class as valuable sources of information. They no longer feel limited to the professor and the textbook as resources. Additionally, discussions with students from diverse backgrounds expose students to a variety of points of view. Knowledge of these broader viewpoints and more effective social skills will be important when the students join an ethnically diverse work force.

Affective Growth. Collaborative learning groups provide a different environment from the traditional classroom because of their social context, the group goal, and the semi-independence of each group. Rather than being a silent classroom, the collaborative learning groups are active and participatory (Sandberg, 1990). These characteristics help to explain why affective growth of participants is more likely to occur in collaborative learning groups.

SI is particularly effective in helping students develop self-confidence and self-esteem as they experiment with new learning strategies without the risk of a poor grade which may put financial aid and academic eligibility in jeopardy. As students gain supportive feedback from the SI leader and other SI students and receive higher grades, their self-esteem spirals upward.

Conclusion

In collaboration with a variety of other first-year experience programs, SI can be an important asset for increasing student effectiveness, retention, and satisfaction. SI provides an environment to review, practice, and apply study strategies presented during orientation programs, and SI leaders can make referrals to other campus resources when needed. Finally, SI sessions can contribute to development of the student in terms of interpersonal skills, multicultural education, and self-esteem. SI provides an excellent way to "front-load" institutional resources on behalf of first-year students.